# Type DB5900E
# Dri-Bath Test Tube Incubator

Operation Manual
and Parts List
*Series 801*

| Model # | Series | Voltage |
|---|---|---|
| DB5915E | 801 | 120 |
| DB5925E | 801 | 120 |
| DB5910E | 801 | 220-240 |
| DB5920E | 801 | 220-240 |

*LT801X1 • 3/3/00*

# Table of Contents

**IMPORTANT INFORMATION**

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment.


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# Safety Information

## Alert Signals

**Warning**
Warnings alert you to a possibility of personal injury.

**Caution**
Cautions alert you to a possibility of damage to the equipment.

**Note**
Notes alert you to pertinent facts and conditions.

Your Thermolyne Dri-Bath Test Tube Incubator has been designed with function, reliability, and safety in mind. It is the user's responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

## Warnings

**To avoid electrical shock, always:**

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.

2. Disconnect from the power supply prior to maintenance and servicing.

**To avoid personal injury:**

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

2. Refer servicing to qualified personnel.

# Introduction

**Propriety Name: Dri-Bath**
**Common Name: Test Tube Incubator**

## Intended Use

The Thermolyne Type DB5900E Dri-Bath Test Tube Incubators are designed to provide a controlled dry heat environment for 13 mm test tubes containing in vitro diagnostic specimens or samples for qualitative or quantitative test procedures. The operator may easily view test tube contents while incubating. (Please refer to the clinical laboratory method specified by the reagent manufacturer or established by medical technology for product application.) For in vitro diagnostic use.

## Installation

Remove the incubator from the carton. Check the specification plate on the bottom cover plate for proper voltage and plug into a properly grounded receptacle.

## Principles of Operation

The Type DB5900E Dri-Bath incubator is controlled by a precision temperature sensor and solid state electronic temperature controller. A wire wound heating element covers the under surface of the base casting providing uniform heating of the block. An anodized aluminum block drilled for 13 mm tubes is mounted on the base casting. Cutouts are made for each well and transparent plexiglass side panels cover the contact area for easy viewing. This design provides heating of the base and sides of the test tube for uniform temperature of test tube contents.

# General Specifications

## Electrical Ratings

| Model | Volts | Amps | Watts | Hz | Wells |
|---|---|---|---|---|---|
| DB5915E | 120 | .38 | 45 | 50/60 | 10 |
| DB5925E | 120 | .38 | 45 | 50/60 | 20 |
| DB5910E | 240 | .19 | 45 | 50/60 | 10 |
| DB5920E | 240 | .19 | 45 | 50/60 | 20 |

**Factory Calibrated Temp.:** 37°C ± .25
**Operating Range:** 30°C to 60°C
**Temperature Uniformity:** ±.20°C at 37°C
**Temperature Stability:** ±.30°C at 37°C
**Heat-up time of unloaded dri-bath from a cold start to 37°C:** 15 minutes for 10 well units, 20 minutes for 20 well units.
**Ambient Operating Range:** 17°C - 27°C
**Repeatability:** ±.25°C

# Operation

Plug the test tube incubator into a properly grounded receptacle. Insert a standard calibrated thermometer (51 mm immersion depth) into a 13 X 100 mm test tube containing 2-3 ml. of solution and wait until the thermometer indicates the factory preset temperature of 37°C. (See the “Calibration” section for additional instructions.) You are ready to incubate when the thermometer temperature has stabilized within ±1/2°C from the set temperature.

- This dri-bath may be calibrated to maintain a temperature other than the factory pre-set calibrated temperature of 37°C. To achieve a temperature setting within a range of 30-60°C, refer to the calibration instructions in this manual.

- The incubator is designed for continuous use at the set temperature.

# Calibration

**Caution**
Potentiometer rotates through 300 circular degrees maximum (approximately 7/8 of one full turn). *Do not force potentiometer.*

## Equipment Required

1 regular tip 7/32” screwdriver

1 test tube 13 x 100 mm

1 standard calibrated laboratory thermometer (51 mm immersion depth)

1. Fill the 13 x 100 mm test tube with 2-3 ml. of solution and place in dri-bath. Thermometer should be suspended in solution in the tube. Avoid letting the thermometer rest on the bottom of the test tube.

2. Turn the potentiometer on the back of the unit clockwise (as you look at the back of the unit) to increase temperature and counterclockwise to decrease temperature. The potentiometer rotates through 300 circular degrees. Each degree of rotation is equal to .15°C; 1/4 turn (90 circular degrees) equals approximately 12°C.

3. Allow 10 minutes stabilization time between fine adjustments.

# Operational Precautions and Limitations

**Warning**
Do not use in the presence of flammable or combustible materials — fire or explosion may result. This device contains components which may ignite such materials.

1. Do not place dri-bath in a draft, sunlight or near equipment which emits heat as this may result in fluctuating temperatures.

2. Test tube liquid levels should not exceed the level of the well depth.

3. Placing a full load of cold tubes in the dri-bath will extend the recovery time.

4. Only 13 mm test tubes should be used in the dri-bath to obtain optimum results.

# Maintenance and Servicing

**Warning**
Refer servicing to qualified personnel.

Disconnect from power supply before servicing.

## Cleaning

1. Unplug incubator.
2. Remove six screws holding plexiglass panels.
3. Panels may be washed in a mild detergent using lukewarm water. Incubator may be cleaned with a moist soapy cloth. *Do not immerse bottom control section.*

## Replacing Element

**Caution**
Grip thermistor on sleeving near aluminum plate.

1. Disconnect from line voltage.
2. Place unit upside down.
3. Remove the four screws on the outside of the lower casting. Remove bottom cover.
4. Disconnect terminals from heating element.
5. Carefully remove thermistor from block.
6. Remove the 2 screws and washers which are located on the aluminum plate. (These screws hold the heating element onto the casting; they also hold the block to the casting.)
7. Remove the plate with the PC board and lay it to one side.
8. Remove the insulation, element and spacers.
9. Install the new element.
10. Replace the insulation, spacers, plate with PC board, washers and screws.
11. Clean the old (RTV) silicone from the plate and thermistor.
12. Using 100% silicone, coat the tip of the thermistor. Reinstall the thermistor in the block.

13. Connect the element leads. Replace the cover and screws.

14. Place the unit upright. Calibrate the unit according to the “Calibration” section of this manual.

**Caution**
Grip thermistor on sleeving near aluminum plate.

## Replacing the PC Board

1. Disconnect from line voltage.

2. Place unit upside down.

3. Remove the four screws on the outside of the lower casting. Remove bottom cover.

4. Disconnect all terminals from PC Board.

5. Carefully remove thermistor from block.

6. Remove PC board from clips.

7. Install new PC board. Reconnect line cord leads terminals marked L1 & L2 - white or blue on L2, black or brown on L1. Reconnect element leads.

8. Clean the old (RTV) silicone from the plate.

9. Using 100% silicone, coat the tip of the thermistor. Reinstall the thermistor in the block.

10. Replace the cover and screws.

11. Place the unit upright. Recalibrate the unit according to the “Calibration” section of this manual.

# Troubleshooting

| Problem | Cause | Solution |
|---|---|---|
| Does not heat | Defective Thermistor | Replace Thermistor |
| | Defective Control Board | Replace Board |
| | Open Element | Replace Element |
| | Loose or Broken Connection | Reconnect or replace faulty connection |
| Unit heats full on | Potentiometer set at maximum | Check Potentiometer position |
| | Defective Control Board | Replace Control Board |

# Replacement Parts

**Model Number(s):** DB5915E, DB5925E, DB5910E, DB5920E
**Product Name:** Dri-Bath Test Tube Incubator
**Series Number:** 801

| Model Number | Part No. | Description |
|---|---|---|
| DB5925E, DB5915E | PC753X1A | Electronic control |
| DB5910E, DB5920E | PC753X2A | Electronic control |
| DB5915E, DB5925E | CR760X2A | Cord and plug, 120V |
| DB5910E, DB5920E | CR801X1A | Cord and plug, 240V |
| DB5915E, DB5925E | EL753X1 | Heating element, 120V |
| DB5910E, DB5920E | EL753X2 | Heating element, 240V |
| All Models | DL753X7 | Plexiglass numbered plate, 1-10 |
| DB5925E, DB5920E | DL753X6 | Plexiglass numbered plate, 11-20 |
| DB5915E, DB5910E | PT59X1 | Unnumbered plexiglass plate |

# Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the Barnstead|Thermolyne dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.

Prior to returning any materials to Barnstead|Thermolyne Corp., please contact our Customer Service Department for a “Return Goods Authorization” number (RGA). Material Returned without an RGA number will be returned.

# One Year Limited Warranty

**Barnstead|Thermolyne Corporation** warrants that if a product manufactured by Barnstead|Thermolyne and sold by it within the continental United States or Canada proves to be defective in material or construction, it will provide you, without charge, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for one (1) year, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by Barnstead|Thermolyne or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized Barnstead|Thermolyne dealer or Barnstead|Thermolyne (at its own discretion). Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by Barnstead|Thermolyne. The name of the authorized Barnstead|Thermolyne dealer nearest you may be obtained by calling 1-800-446-6060 (319-556-2241) or writing to:

**Barnstead|Thermolyne**
P.O. Box 797
2555 Kerper Boulevard
Dubuque, IA 52004-0797
USA
FAX: (319) 589-0516
E-MAIL ADDRESS: mkt@barnstead.com

**Barnstead|Thermolyne's** sole obligation with respect to its product shall be to repair or (at its own discretion) replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO **Barnstead|Thermolyne** PRODUCTS. **Barnstead|Thermolyne** EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

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